

Claims

1. A protein comprising the same or substantially the same amino acid sequence as the amino acid sequence starting at
5 Amino Acid No.1 in the amino acid sequence shown by SEQ ID NO:2 or 4 or a salt thereof.
2. The protein of claim 1, which comprises the same or substantially the same amino acid sequence as the amino acid
10 sequence starting at Amino Acid No.1 in the amino acid sequence shown by SEQ ID NO:2 or 4 or a salt thereof.
3. A partial peptide of the protein of claim 1 or a salt thereof.
- 15 4. A nucleic acid comprising a base sequence encoding the protein of claim 1.
5. The nucleic acid of claim 4, which comprises the base
20 sequence starting at Base No.88 in the base sequence shown by SEQ ID NO:1 or 3 (if the nucleic acid is an RNA, however, the base shown by the symbol t in the base sequence is replaced with uridine).
- 25 6. A nucleic acid comprising a base sequence encoding a polypeptide comprising the same or substantially the same amino acid sequence as the amino acid sequence shown by SEQ ID NO:2 or 4, or a portion thereof.
- 30 7. A recombination vector comprising the nucleic acid of claim 4.
8. A transformant obtained by transforming a host cell with the recombination vector of claim 7.

9. A method of producing the protein of claim 1 or a salt thereof, which comprises culturing the transformant of claim 8 to produce the protein or a salt thereof.

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10. A pharmaceutical containing the protein of claim 1 or the partial peptide of claim 3 or a salt thereof.

11. A pharmaceutical containing the nucleic acid of claim 4.

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12. The pharmaceutical of claim 10 or 11, which is a prophylactic/therapeutic agent for a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality.

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13. The pharmaceutical of claim 12, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

14. A prophylactic/therapeutic method for a disease involved in
20 differentiation of skeletal muscle cell and/or metabolic abnormality, which comprises administering an effective amount of the protein of claim 1, the partial peptide of claim 3 or a salt thereof, or the nucleic acid of claim 4, to a mammal.

25 15. The method of claim 14, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

16. A use of the protein of claim 1, the partial peptide of claim 3 or a salt thereof, or the nucleic acid of claim 4,
30 which is for producing a prophylactic/therapeutic agent for a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality.

17. The use of claim 16, wherein the metabolic abnormality is a

sugar/lipid metabolic abnormality.

18. A diagnostic reagent containing the nucleic acid of claim 6.

5 19. An antibody against the protein of claim 1 or the partial peptide of claim 3 or a salt thereof.

20. A diagnostic reagent containing the antibody of claim 19.

10 21. The diagnostic reagent of claim 18 or 20, which is for diagnosing a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality.

22. A pharmaceutical containing the antibody of claim 19.

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23. A nucleic acid comprising a base sequence complementary to the base sequence encoding a polypeptide comprising the same or substantially the same amino acid sequence as the amino acid sequence shown by SEQ ID NO:2 or 4, or a portion thereof.

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24. A pharmaceutical containing the nucleic acid of claim 23.

25 25. The pharmaceutical of claim 22 or 24, which is a prophylactic/therapeutic agent for a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality.

26. The pharmaceutical of claim 25, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

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27. A prophylactic/therapeutic method for a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality, which comprises administering an effective amount of the antibody of claim 19 or the nucleic acid of claim 23 to

a mammal.

28. The method of claim 27, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

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29. A use of the antibody of claim 19 or the nucleic acid of claim 23, which is for producing a prophylactic/therapeutic agent for a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality.

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30. The use of claim 29, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

31. A screening method for a prophylactic/therapeutic substance
15 for a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality, which comprises using the protein of claim 1 or the partial peptide of claim 3 or a salt thereof.

20 32. The screening method of claim 31, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

33. A screening kit for a prophylactic/therapeutic substance for a disease involved in differentiation of skeletal muscle
25 cell and/or metabolic abnormality, which comprises the protein of claim 1 or the partial peptide of claim 3 or a salt thereof.

34. The screening kit of claim 33, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

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35. A screening method for a prophylactic/therapeutic substance for a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality, which comprises using the nucleic acid of claim 4.

36. The screening method of claim 35, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

5 37. A screening kit for a prophylactic/therapeutic substance for a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality, which comprises the nucleic acid of claim 4.

10 38. The screening kit of claim 37, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

39. A prophylactic/therapeutic agent for a disease involved in differentiation of skeletal muscle cell and/or metabolic
15 abnormality, which contains a regulator of the protein of claim 1 or a salt thereof.

40. The prophylactic/therapeutic agent of claim 39, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

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41. A prophylactic/therapeutic method for a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality, which comprises administering an effective amount of a regulator of the protein of claim 1 or a salt thereof to a
25 mammal.

42. The method of claim 41, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.

30 43. A use of a regulator of the protein of claim 1 or a salt thereof for producing a prophylactic/therapeutic agent for a disease involved in differentiation of skeletal muscle cell and/or metabolic abnormality.

44. The use of claim 43, wherein the metabolic abnormality is a sugar/lipid metabolic abnormality.